

## CLAIMS

1. In an envelope detector for determining whether the level of a differential input signal  $DPIN - DNIN$  is above a reference voltage  $V_{REF}$ : means for converting the differential input signal to a differential current  $IDP - IDN$  and the reference voltage to a reference current  $I_{REF}$ , means for  
5 comparing the currents to determine if  $|IDP - IDN|$  is greater than  $I_{REF}$ , and means for indicating a valid differential signal when  $|IDP - IDN|$  is greater than  $I_{REF}$ .
2. The envelope detector of Claim 1 wherein the means for determining if  $|IDP - IDN|$  is greater than  $I_{REF}$  includes a first comparator for comparing  $IDP - IDN$  with  $I_{REF}$  and a second comparator for comparing  $IDN - IDP$  with  $I_{REF}$ .
3. The envelope detector of Claim 2 wherein the means for indicating a valid differential signal includes an OR circuit coupled to the comparators for providing an output signal when  $IDP - IDN > I_{REF}$  or  $IDN - IDP > I_{REF}$ .
4. In a method of determining whether the level of a differential input signal  $DPIN - DNIN$  is above a reference voltage  $V_{REF}$ , the steps of: converting the differential input signal to a differential current  $IDP - IDN$ , converting the reference voltage to a reference current  $I_{REF}$ , comparing the  
5 currents to determine if  $|IDP - IDN|$  is greater than  $I_{REF}$ , and means for indicating a valid differential signal when  $|IDP - IDN|$  is greater than  $I_{REF}$ .
5. The method of Claim 4 wherein the currents are compared by comparing  $IDP - IDN$  and  $IDN - IDP$  with  $I_{REF}$ , and the valid differential signal is indicated if either  $IDP - IDN$  or  $IDN - IDP$  is greater than  $I_{REF}$ .
6. In an envelope detector for determining whether the level of a differential input signal  $DPIN - DNIN$  is above a reference voltage  $V_{REF}$ , the

5 differential input signal being cyclical with DPIN and DNIN each being greater  
than the other during alternate cycles and crossing over during a switching  
interval between the cycles: means for converting the differential input signal  
to a differential current  $IDP - IDN$  and the reference voltage to a reference  
current  $I_{REF}$ , means for comparing the currents and providing an output  
signal indicative of a valid differential signal when  $|IDP - IDN|$  is greater than  
 $I_{REF}$ , and means for maintaining the output signal during the switching  
10 interval following a cycle in which  $|IDP - IDN|$  is greater than  $I_{REF}$ .

7. The envelope detector of Claim 6 wherein the means for comparing  
the currents includes a first comparator for comparing  $IDP - IDN$  with  $I_{REF}$   
and a second comparator for comparing  $IDN - IDP$  with  $I_{REF}$ , and the means  
for providing the output signal includes an OR circuit coupled to the  
comparators for providing the output signal when  $IDP - IDN > I_{REF}$  or  $IDN -$   
 $IDP > I_{REF}$ .

8. The envelope detector of Claim 7 wherein the means for maintaining  
the output signal comprises a Schmitt trigger responsive to the output signal  
from OR circuit.

9. In a method of for determining whether the level of a differential input  
signal  $DPIN - DNIN$  is above a reference voltage  $V_{REF}$ , the differential input  
signal being cyclical with DPIN and DNIN each being greater than the other  
during alternate cycles and crossing over during a switching interval between  
5 the cycles, the steps of: converting the differential input signal to a  
differential current  $IDP - IDN$  and the reference voltage to a reference current  
 $I_{REF}$ , comparing the differential current and the reference current, providing  
an output signal indicative of a valid differential signal when  $|IDP - IDN|$  is  
greater than  $I_{REF}$ , and maintaining the output signal during the switching  
10 interval following a cycle in which  $|IDP - IDN|$  is greater than  $I_{REF}$ .

10. The method of Claim 9 wherein  $IDP - IDN$  and  $IDN - IDP$  are compared with  $I_{REF}$ , and the output signal is provided when  $IDP - IDN > I_{REF}$  or  $IDN - IDP > I_{REF}$ .
11. The method of Claim 9 wherein the output signal is passed through a Schmitt trigger having trigger levels set further apart than a change in the output signal during the switching interval.